

## **SHEET TYPE BALLOON**

### **BACKGROUND OF THE INVENTION**

#### **1. Field of the Invention**

The present invention relates generally to a balloon and, more particularly, to a sheet type balloon used as studying or playing materials.

#### **2. Description of the Related Art**

Conventional balloons are made chiefly of rubber or synthetic resin in the form of variously shaped, hollow bags inflated with air or gas, and generally used as playing materials, i.e., toys. However, conventional balloons are difficult to use for purposes related to coloring or studying because the surface of the balloon is not easily colored with crayons or paints after fabrication. The surface of the balloon is merely colored or printed during fabrication.

U.S. Patent No. 5,108,339 has introduced a non-latex balloon, which includes a first inner balloon encompassed by a partially transparent second outer balloon. It is true that this balloon is a colorfully designed, interesting product, but such a toy balloon does not seem suited for coloring or studying materials.

Also, U.S. Patent Nos. 5,108,339 and 5,482,492 have disclosed valves introducing an inflating gas into the balloon interior. However, these valves need additionally an inflation probe, such as a straw-like slender tube, so as to supply the filling fluid such as air into the valves. Therefore, such a valve and balloon assembly may cause inconvenience to a user, and furthermore, a user may be

often hurt when he blows air carelessly into the inflation pipe with the inflation probe in his mouth. Moreover, since the above-discussed valves have structural limitations that a backward flow of an inflating gas is not allowed, the above balloons are not handy to carry with an inflating gas deflated. Unfortunately, this invites reuse issues and environmental pollution.

### SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide an improved sheet type balloon that can be utilized as coloring or studying materials as well as playing materials.

Another object of the present invention is to provide an improved sheet type balloon that allows an easy deflation of air or gas, thus promoting the convenience in use, carrying, and reuse.

According to one embodiment of the present invention, a sheet type balloon is provided, which comprises a body, a valve assembly, and a blank, colorable area. The body has an internal space defined by a joined periphery, and after inflated, has a particular shape. The valve assembly is formed at a specific place of the joined periphery so as to allow an inflation gas to be introduced into the internal space. The blank, colorable area is partly formed on an outer surface of the body and is available for coloring with crayons or paints.

According to alternative embodiments of the present invention, the sheet type balloon may further comprise a printed area formed around the colorable area. Further, the body may include a pair of sheets joined together at the joined periphery. Each sheet may have a paper layer allowing to be colored, a nylon layer

improving durability of the sheet, a first outer polyethylene layer intervening between and firmly connecting the paper layer and the nylon layer, and a second inner polyethylene layer facilitating thermal joining between the pair of sheets at the joined periphery. Additionally, the body may further include a bottom interposed between the pair of sheets at lower parts of the body, and spread out when the body is inflated by filling the internal space with gas, thus allowing the inflated body to stand.

According to another embodiments of the present invention, the valve assembly may include a pair of valve sheets, a first sheet of which has a convexly protruding line, and a second sheet of which has a concavely protruding line. The protruding lines correspond to each other and form a fastener by inserting closely the convexly protruding line into the concavely protruding line. The fastener may be formed at one place or at least two places between the pair of the valve sheets.

The valve assembly may further include a pair of binders securing together confronting side edges of the pair of the valve sheets, and a passage defined between the pair of the binders and between the pair of the valve sheets and extending from one opening of the valve assembly to the other opening. Also, the valve assembly may further include a non-adhesive coating formed in the passage to prevent the pair of valve sheets from adhering to each other when outer surfaces of the valve sheets are attached to the body. The non-adhesive coating may be directly formed on inner surfaces of the valve sheets or on a separate sheet interposed between the pair of the valve sheets.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view showing a sheet type balloon in accordance with one embodiment of the present invention.

FIG. 2 is a perspective view of the sheet type balloon shown in FIG. 1 in an inflated state.

FIG. 3 is a cross-sectional view of the sheet type balloon shown in FIG. 2.

FIG. 4 is a partial, enlarged view of the sheet type balloon shown in FIG. 3.

FIG. 5 is an exploded perspective view of a valve assembly of a sheet type balloon in accordance with another embodiment of the present invention.

FIG. 6 is a perspective view of the valve assembly shown in FIG. 5 after assembled.

FIG. 7 is a cross-sectional view of the valve assembly shown in FIG. 6.

FIG. 8 is an exploded perspective view of a valve assembly of a sheet type balloon in accordance with still another embodiment of the present invention.

FIG. 9 is a cross-sectional view of the valve assembly shown in FIG. 8 after assembled.

FIG. 10 is a cross-sectional view of a valve assembly of a sheet type balloon in accordance with yet another embodiment of the present invention.

FIG. 11 is a partial, cross-sectional view of a valve assembly secured with a sheet type balloon in an open state in accordance with yet another embodiment of the present invention.

FIG. 12 is a partial, cross-sectional view of a valve assembly secured with a sheet type balloon in a closed state in accordance with yet another embodiment of the present invention.

FIG. 13 is a front view showing a sheet type balloon in accordance with yet another embodiment of the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

A sheet type balloon according to a preferred embodiment is shown in FIGS. 1 through 4. Referring to FIGS. 1 through 4, a body 1 of the balloon has an internal space 1a defined by a joined periphery 1b. A valve assembly 2 is formed at a specific place of the joined periphery 1b so as to allow an inflation gas to be introduced into the internal space 1a. After inflated, the body 1 has a desired, particular shape, for example, a turtle shown in FIG. 1, a bus shown in FIG. 13, or other various things.

Partly formed on an outer surface of the body 1 is a blank, colorable area 3 available for coloring with crayons or paints. Also, formed around the colorable area 3 is a printed area 4. The colorable area 3 is made of colorable material, such as paper, and attached onto or directly coated on the outer surface of the body 1. The printed area 4 is a design.

As shown in FIGS. 3 and 4, the body 1 is composed of a pair of sheets thermally joined together at the periphery 1b. As best shown in FIG. 4, each sheet of the body 1 includes a paper layer 10, a first outer polyethylene layer 12, a nylon

layer 14, and a second inner polyethylene layer 16. The paper layer 10 allows to be colored, and the nylon layer 14 improves durability of the sheet. The first outer polyethylene layer 12 intervenes between and firmly connects the paper layer 10 and the nylon layer 14. The second inner polyethylene layer 16 facilitates thermal joining between the pair of sheets at the periphery 1b.

Interposed between the pair of sheets at lower parts of the body 1 is a bottom 5 shown in FIG. 3. The bottom 5 is spread out when the body 1 is inflated by filling the internal space 1a with gas, thus allowing the inflated body 1 to stand.

Even though any conventional valves can be used, the sheet type balloon of the present invention uses a new, unique, bi-directional valve assembly 2, several examples of which are shown in FIGS. 5 through 12.

The bi-directional valve assembly 2 is composed of a pair of valve sheets 20. One valve sheet 20 has a convexly protruding line 21a, and the other valve sheet 20 has a concavely protruding line 21b. Both protruding lines 21a and 21b correspond to each other and form a fastener 21 by inserting closely the convexly protruding line 21a into the concavely protruding line 21b. The fastener 21 can be formed at one place as shown in FIGS. 5 through 9, or alternatively at two or more places as shown in FIG. 10 so as to increase sealing effects.

Confronting side edges of the sheets 20, at which both ends of the protruding line 21a and 21b terminate, are secured together by a pair of binders 22. Therefore, excepting the fastener 21, a passage 25 is defined between the right and left binders 22 and between the upper and lower sheets 20, extending from one opening 23 to the other opening 24.

In the passage 25, a non-adhesive coating 26 is formed to prevent the pair of sheets 20 from adhering to each other when outer surfaces of the sheets 20 are

attached to the body 1. The non-adhesive coating 26 can be directly formed on inner surfaces of the sheets 20 as shown in FIGS. 5 through 7, or alternatively on a separate sheet 27 interposed between the upper and lower sheets 20 as shown in FIGS. 8 and 9. Preferably, the non-adhesive coating 26 is printed with ink, not affinity for the sheets 20, in a photogravure manner.

For the fabrication of the sheet type balloon, as best shown in FIGS. 11 and 12, the valve assembly 2 is partially inserted into the body 1 such that one end adjacent to the non-adhesive coating 26 faces the body 1. Then, by thermally joining the outer surfaces of the valve sheets 20 to the joined periphery 1b of the body 1, the valve assembly 2 is fixed to the body 1. Here, an interface between the valve assembly 2 and the body 1 is sealed hermetically, whereas the passage 25 is established in the valve assembly 2 by the non-adhesive coating 26.

In a deflated state, the balloon of the present invention can be used as coloring or studying materials by painting the colorable area 3 with crayons or paints. In an inflated state, the balloon forms a desired three-dimensional shape attracting the interest as playing materials. Also, the inflated balloon can be stood though the bottom 5 spread out.

To inflate the balloon with air or gas, the fastener 21 of the valve assembly 2 becomes open by separating the convexly protruding line 21a and the concavely protruding line 21b, as shown in FIG. 11. Therefore, inflating air or gas can easily flow into the body 1 via the first opening 24, a space between the separated protruding lines 21a and 21b, the passage 25, and the second opening adjacent to the non-adhesive coating 26.

After inflation, the fastener 21 of the valve assembly 2 becomes closed by apply a pressure to both protruding lines 21a and 21b. Therefore, the protruding

lines 21a and 21b are closely combined and thus intercept the outward flow of inflating air or gas within the body 1.

When a user wants to deflate the balloon for carrying, reuse or other purposes, a user has only to make the fastener 21 open by separating the protruding lines 21a and 21b. Accordingly, the valve assembly 2 of the present invention has bi-directional functions, that is, deflation and inflation of the balloon, on repeated occasions. Further, the valve assembly 2 of the present invention is available without additionally employing typical inflation probes.

While this invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.